

## Appendix D: Metrological Data

### D1: ANNUAL CLIMATOLOGICAL SUMMARY -2009

U.S. Department of Commerce  
National Oceanic &  
Atmospheric Administration

National Climatic Data Center  
Federal Building  
151 Patton Avenue  
Asheville, North Carolina 28801

Station: 502968/26411, FAIRBANKS INTL AP, Alaska  
Elev. 432 ft. above sea level  
Lat. 64°48'N, Lon. 147°53'W

Date	Temperature (° F)													
Elem->	MMXT	MMNT	MNTM	DPNT	HTDD	CLDD	EMXT		EMNP		DT90	DX32	DT32	DT00
2009	Mean	Mean	Mean	Depart.	Heating	Cooling	Highest	High	Lowest	Low	Number of Days			
Month	Max.	Min.		from	Degree	Degree		Date		Date				
				Normal	Days	Days					Max	Max	Min	Min
											>=90°	<=32°	<=32°	<=0°
1	-3.6	-20.3	-12	-2.3	2389	0	52	16	-47	8		27	31	24
2	10.1	-13.1	-1.5	2.3	1860	0	35	19	-43	3		27	28	22
3	17.7	-6.5	5.6	-5.5	1841	0	40	29	-27	15		29	31	24
4	44.6	17.8	31.2	-0.5	1008	0	76	30	-15	2		3	27	5
5	62.6	40.5	51.6	2.8	409	0	80	25	31	15		0	2	0
6	70.5	50	60.3	0.6	144	6	85	4	41	25		0	0	0
7	78.6	54.3	66.5	4.1	27	79	91	8	46	24		0	0	0
8	63.2	45.7	54.5	-1.7	323	3	84	4	33	20		0	0	0
9	58.2	38.8	48.5	4	488	0	74	5	22	29		0	7	0
10	38.8	22.6	30.7	7.2	1055	0	57	11	-1	31		11	25	1
11	7.7	-10.2	-1.3	-3.6	1987	0	30	30	-34	21		30	30	25
12	4.7	-10.4	-2.9	3	2105	0	36	1	-36	19		30	31	27
Annual	37.8	17.4	27.6	0.9	13636	88	91	Jul	-47	Jan		157	212	128

Precipitation (inches)									
TPCP	DPNP	EMXP		TSNW	MXSD		DP01	DP05	DP10
Total	Depart. from Normal	Greatest Observed		Snow, Sleet			Number of Days		
		Day	Date	Total Fall	Max Depth	Max Date	>=.10	>=.50	>=1.0
0.52	-0.04	0.17	19	9.2	19	31	3	0	0
0.59	0.23	0.19	28	14.1	22	28	2	0	0
1.09	0.81	0.69	5	15.5	30	8	2	1	0
0.09	-0.12	0.09	23	0.0T	26	3	0	0	0
0.05	-0.55	0.05	11	0	0		0	0	0
1.55	0.15	0.38	24	0	0		6	0	0
0.06	-1.67	0.04	15	0	0		0	0	0
2.72	0.98	0.58	6	0	0		8	2	0
0.53	-0.59	0.17	13	0.2	0T	26	2	0	0
0.5	-0.42	0.22	26	5.3	5	31	2	0	0
0.31	-0.37	0.08	12	7.4	8	30	0	0	0
0.36	-0.38	0.09	18	6.8	12	21	0	0	0
8.37	-1.97	0.69	Mar	58.5	30	Mar	25	3	0

blank) Not reported.

Occurred on one or more previous dates during the month. The date in the Date field is the last day of occurrence.

Used through December 1983 only.

A Accumulated amount. This value is a total that may include data from a previous month or months or year (for annual value).

B Adjusted Total. Monthly value totals based on proportional available data across the entire month.

E An estimated monthly or annual total.

X Monthly means or totals based on incomplete time series. 1 to 9 days are missing.

Annual means or totals include one or more months which had 1 to 9 days that were missing.

M Used to indicate data element missing.

T Trace of precipitation, snowfall, or snowdepth. The precipitation data value will = zero.

Elem-> Element Types are included to provide cross-reference for users of the NCDC CDO System.

Station Station is identified by: CoopID/WBAN, Station Name, State.

S Precipitation amount is continuing to be accumulated. Total will be included in a subsequent monthly or yearly value.

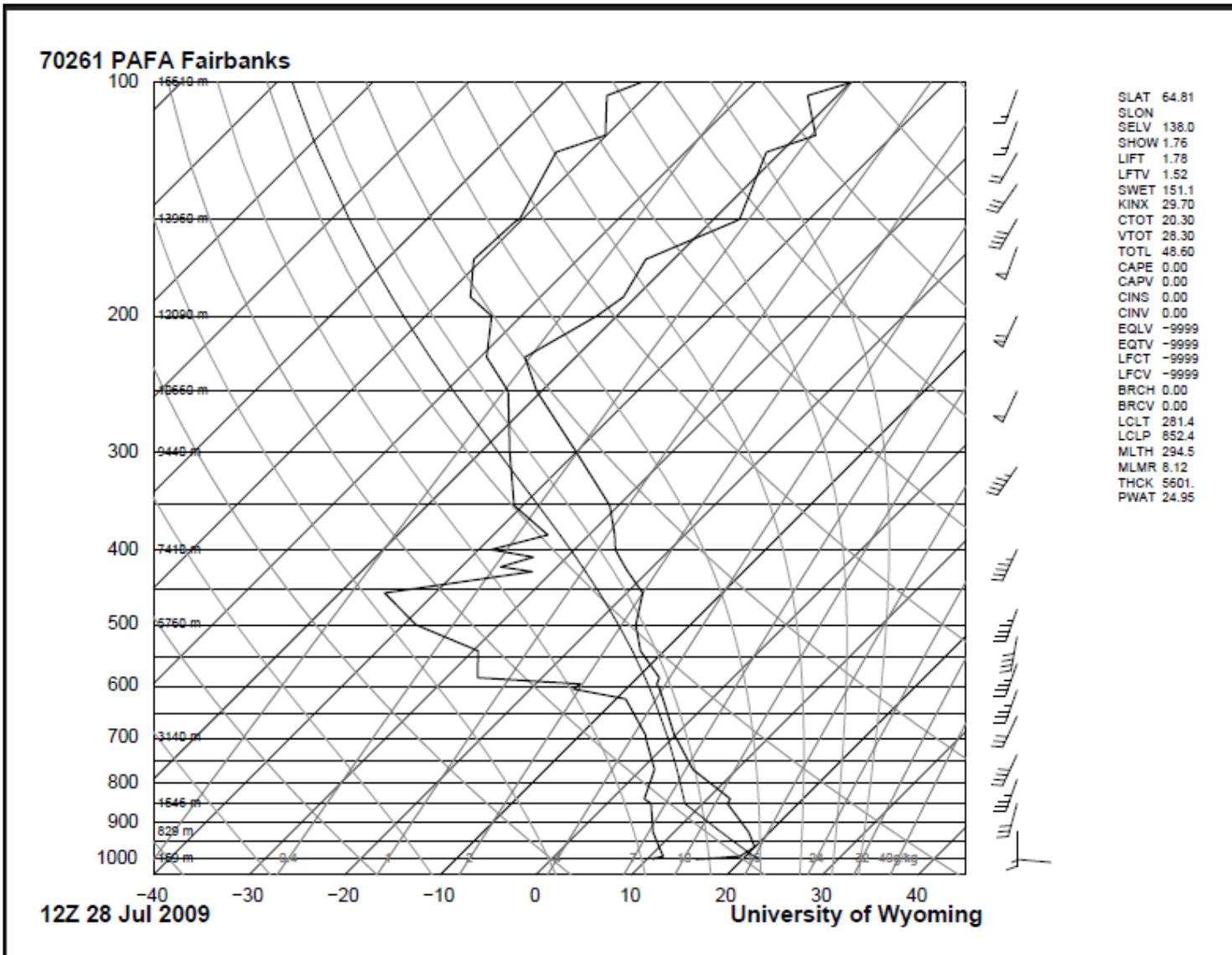
Example: Days 1-20 had 1.35 inches of precipitation, then a period of accumulation began.

The element TPCP would then be 00135S and the total accumulated amount value appears in a subsequent monthly value.

If TPCP = "M" there was no precipitation measured during the month.

Flag is set to "S" and the total accumulated amount appears in a subsequent monthly value.

D2: JULY 28<sup>TH</sup> 2009



*D3: FAIRBANKS UPPER AIR SOUNDING, JULY 28, 2009 SUPPORTING DATA*

70261 PAFA Fairbanks Observations at 12Z 28 Jul 2009

PRES	HGHT	TEMP	DWPT	RELH	MIXR	DRCT	SKNT	THTA	THTE	THTV
hPa	m	C	C	%	g/kg	deg	knot	K	K	K
1003.0	138	15.2	10.7	75	8.11	95	2	288.1	311.1	289.5
1000.0	159	16.6	10.6	68	8.08	99	3	289.8	312.8	291.2
994.0	211	19.4	11.4	60	8.58	108	4	293.1	317.9	294.6
967.0	448	20.0	10.0	53	8.03	148	9	296.0	319.5	297.4
948.9	610	19.1	9.1	52	7.68	175	13	296.6	319.2	298.0
925.0	829	17.8	7.8	52	7.22	180	14	297.5	318.9	298.8
915.8	914	17.2	7.4	53	7.11	180	15	297.7	318.8	299.0
883.4	1219	15.0	6.1	55	6.71	190	20	298.5	318.5	299.7
850.0	1546	12.6	4.6	58	6.29	195	28	299.3	318.2	300.5
838.0	1665	12.4	3.4	54	5.86	197	31	300.3	318.1	301.4
821.6	1829	10.8	3.0	58	5.79	200	34	300.4	317.9	301.4
791.9	2134	7.9	2.1	67	5.66	200	36	300.4	317.5	301.4
768.0	2388	5.4	1.4	75	5.54	200	39	300.4	317.2	301.4
763.3	2438	5.1	1.1	76	5.47	200	39	300.5	317.1	301.5
735.1	2743	3.0	-0.6	77	5.01	205	39	301.6	316.9	302.5
708.0	3048	1.0	-2.3	79	4.59	210	35	302.6	316.8	303.4
700.0	3140	0.4	-2.8	79	4.47	210	34	302.9	316.7	303.7
694.0	3209	-0.1	-3.1	80	4.41	209	34	303.1	316.7	303.9
655.9	3658	-2.7	-6.2	77	3.69	205	31	305.1	316.7	305.8
623.0	4067	-5.1	-9.0	74	3.12	202	34	306.9	316.9	307.4
607.3	4267	-6.3	-14.7	52	2.03	200	36	307.7	314.4	308.1
605.0	4297	-6.5	-15.5	49	1.90	200	36	307.8	314.1	308.2
596.0	4414	-7.3	-15.3	53	1.96	200	36	308.2	314.7	308.6
585.0	4559	-7.7	-26.7	20	0.74	200	36	309.4	312.0	309.5
561.3	4877	-10.2	-28.1	21	0.68	200	37	310.1	312.5	310.3
540.0	5176	-12.5	-29.5	23	0.62	195	37	310.8	313.0	310.9
518.4	5486	-14.2	-34.4	16	0.40	190	38	312.4	313.9	312.5
500.0	5760	-15.7	-38.7	12	0.27	190	40	313.8	314.9	313.9
478.0	6096	-16.9	-41.8	10	0.20	200	43	316.4	317.1	316.4
458.9	6401	-18.1	-44.7	8	0.16	210	50	318.7	319.3	318.7
455.0	6465	-18.3	-45.3	7	0.15	210	50	319.1	319.7	319.2
427.0	6935	-22.1	-32.1	40	0.61	207	47	320.1	322.4	320.3
421.0	7038	-22.9	-35.9	29	0.43	207	47	320.4	322.0	320.5
409.0	7249	-24.5	-33.5	43	0.56	206	46	321.0	323.1	321.1

400.0	7410	-25.7	-38.7	29	0.34	205	45	321.5	322.8	321.6
388.5	7620	-26.8	-35.8	42	0.47	205	45	322.8	324.6	322.9
383.0	7724	-27.3	-34.3	51	0.55	206	45	323.4	325.5	323.5
351.0	8347	-30.9	-40.9	37	0.31	210	46	326.7	327.9	326.8
313.0	9144	-37.5	-45.3	44	0.22	215	47	328.4	329.3	328.5
300.0	9440	-39.9	-46.9	47	0.19	210	45	329.0	329.8	329.1
250.0	10660	-50.5	-53.5	70	0.11	205	50	330.9	331.3	330.9
249.7	10668	-50.6	-53.6	70	0.10	205	51	330.9	331.3	330.9
226.0	11308	-55.3	-59.3	61	0.06	205	54	333.2	333.4	333.2
200.0	12090	-52.1	-63.1	25	0.04	205	59	350.1	350.3	350.1
196.9	12192	-51.9	-64.3	21	0.03	205	59	352.0	352.2	352.0
189.0	12457	-51.3	-67.3	13	0.02	204	57	357.1	357.2	357.1
169.0	13181	-52.9	-70.9	10	0.02	201	50	366.0	366.1	366.0
163.2	13411	-51.2	-70.8	8	0.02	200	48	372.6	372.7	372.6
151.0	13916	-47.5	-70.5	5	0.02	209	42	387.3	387.4	387.3
150.0	13960	-47.3	-70.3	5	0.02	210	42	388.4	388.5	388.4
135.4	14630	-49.5	-72.0	5	0.02	215	32	396.0	396.1	396.0
123.4	15240	-51.4	-73.5	6	0.01	210	22	403.1	403.2	403.1
123.0	15261	-51.5	-73.5	6	0.01	210	22	403.4	403.4	403.4
117.0	15588	-48.1	-70.1	6	0.03	204	17	415.4	415.6	415.4
112.4	15850	-49.8	-71.5	6	0.02	200	13	417.1	417.2	417.1
104.0	16355	-53.1	-74.1	6	0.02	200	16	420.1	420.2	420.1
102.3	16459	-51.8	-73.2	6	0.02	200	17	424.5	424.6	424.5
100.0	16610	-49.9	-71.9	6	0.02	200	17	431.0	431.2	431.0
97.7	16764	-50.1	-72.1	6	0.02	200	17	433.5	433.7	433.5
87.9	17453	-51.1	-73.1	6	0.02	197	15	444.8	444.9	444.8
81.0	17983	-52.3	-73.3	6	0.02	195	14	452.9	453.0	452.9
80.9	17992	-52.3	-73.3	6	0.02	195	14	453.0	453.2	453.0
77.0	18312	-51.9	-72.9	6	0.03	197	12	460.3	460.5	460.3
74.6	18520	-47.5	-71.5	5	0.03	198	11	473.7	473.9	473.7
70.0	18940	-48.9	-70.9	6	0.04	200	9	479.4	479.7	479.4
67.5	19177	-50.3	-72.3	6	0.03	195	9	481.4	481.6	481.4
63.0	19628	-47.9	-71.9	5	0.04	184	8	496.3	496.5	496.3
50.0	21140	-49.9	-71.9	6	0.05	150	7	525.4	525.8	525.4
42.1	22265	-49.9	-71.9	6	0.06	138	8	551.9	552.3	551.9
30.0	24500	-46.5	-70.5	5	0.09	115	9	617.2	618.1	617.3
20.0	27190	-44.5	-70.5	4	0.14	100	13	699.2	700.6	699.2
16.9	28319	-45.5	-71.5	4	0.15	104	15	730.4	732.0	730.5
10.0	31880	-38.7	-65.7	4	0.56	115	23	873.9	880.6	874.2
7.0	34360	-35.1	-63.1	4	1.13	95	16	982.5	997.5	983.2
5.6	35932	-30.3	-60.3	4	2.03			1068.3	1097.4	1069.7

## Station information and sounding indices

Station identifier: PAFA  
Station number: 70261  
Observation time: 090728/1200  
Station latitude: 64.81  
Station longitude: -147.86  
Station elevation: 138.0  
Showalter index: 1.76  
Lifted index: 1.78  
LIFT computed using virtual temperature: 1.52  
SWEAT index: 151.18  
K index: 29.70  
Cross totals index: 20.30  
Vertical totals index: 28.30  
Totals totals index: 48.60  
Convective Available Potential Energy: 0.00  
CAPE using virtual temperature: 0.00  
Convective Inhibition: 0.00  
CINS using virtual temperature: 0.00  
Bulk Richardson Number: 0.00  
Bulk Richardson Number using CAPV: 0.00  
Temp [K] of the Lifted Condensation Level: 281.42  
Pres [hPa] of the Lifted Condensation Level: 852.45  
Mean mixed layer potential temperature: 294.58  
Mean mixed layer mixing ratio: 8.12  
1000 hPa to 500 hPa thickness: 5601.00  
Precipitable water [mm] for entire sounding: 24.95

TTAA 78121 70261 99003 15245 09502 00159 16656 // 92829 17860 18014 85546  
12658 19528 70140 00432 21034 50576 15773 19040 40741 25763 20545 30944 39957  
21045 25066 50530 20550 20209 52161 20559 15396 47373 21042 10661 49972 20017  
88226 55340 20554 77999 51515 10164 00002 10194 18519 20035

TTBB 78120 70261 00003 15245 11994 19458 22967 20060 33838 12459 44768 05440  
55694 00130 66623 05139 77605 06559 88596 07358 99585 07769 11540 12567 22455  
18377 33427 22160 44421 22963 55409 24559 66400 25763 77383 27357 88351 30960  
99250 50530 11226 55340 22189 51366 33169 52968 44151 47573 55123 51572 66117  
48172 77104 53171 88100 49972 31313 45202 81101 41414 25598

PPBB 78120 70261 90023 09502 17513 18015 90467 19020 20034 20036 9089/ 20039

20539 91024 21035 20531 20036 9168/ 20037 19038 92015 20043 21050 20545 9305/  
21547 20551 94048 20559 20048 21532 95024 21022 20013 20017

TTCC 78121 70261 70894 48972 20009 50114 49972 15007 30450 46574 11509 20719  
44576 10013 10188 38777 11523 07436 35178 09516 88999 77999 51515 10182  
TTDD 7812/ 70261 11879 51172 22809 52371 33770 51971 44746 47574 55675 50372  
66630 47974 77421 49972 88200 44576 99169 45576 11056 30380

PPDD 78120 70261 9559/ 20017 19514

*D4: CODE FOR HOURLY OBSERVATIONS*

04/11/2005

SURFACE HOURLY ABBREVIATED FORMAT

ONE HEADER RECORD FOLLOWED BY DATA RECORDS:

COLUMN DATA DESCRIPTION

01-06 USAF = AIR FORCE CATALOG STATION NUMBER  
08-12 WBAN = NCDC WBAN NUMBER  
14-25 YR--MODAHRMN = YEAR-MONTH-DAY-HOUR-MINUTE IN GREENWICH MEAN TIME (GMT)  
27-29 DIR = WIND DIRECTION IN COMPASS DEGREES, 990 = VARIABLE, REPORTED AS  
'\*\*\*' WHEN AIR IS CALM (SPD WILL THEN BE 000)  
31-37 SPD & GUS = WIND SPEED & GUST IN MILES PER HOUR  
39-41 CLG = CLOUD CEILING--LOWEST OPAQUE LAYER  
WITH 5/8 OR GREATER COVERAGE, IN HUNDREDS OF FEET,  
722 = UNLIMITED  
43-45 SKC = SKY COVER -- CLR-CLEAR, SCT-SCATTERED-1/8 TO 4/8,  
BKN-BROKEN-5/8 TO 7/8, OVC-OVERCAST,  
OBS-OBSCURED, POB-PARTIAL OBSCURATION  
47-47 L = LOW CLOUD TYPE, SEE BELOW  
49-49 M = MIDDLE CLOUD TYPE, SEE BELOW  
51-51 H = HIGH CLOUD TYPE, SEE BELOW  
53-56 VSB = VISIBILITY IN STATUTE MILES TO NEAREST TENTH  
NOTE: FOR SOME STATIONS, VISIBILITY IS REPORTED ONLY UP TO A  
MAXIMUM OF 7 OR 10 MILES IN METAR OBSERVATIONS, BUT TO HIGHER  
VALUES IN SYNOPTIC OBSERVATIONS, WHICH CAUSES THE VALUES TO  
FLUCTUATE FROM ONE DATA RECORD TO THE NEXT. ALSO, VALUES  
ORIGINALLY REPORTED AS '10' MAY APPEAR AS '10.1' DUE TO DATA  
BEING ARCHIVED IN METRIC UNITS AND CONVERTED BACK TO ENGLISH.  
58-65 WW WW WW = PRESENT WEATHER--LISTED BELOW  
67-67 W = PAST WEATHER INDICATOR, SEE BELOW  
69-77 TEMP & DEWP = TEMPERATURE & DEW POINT IN FAHRENHEIT  
79-84 SLP = SEA LEVEL PRESSURE IN MILLIBARS TO NEAREST TENTH  
86-90 ALT = ALTIMETER SETTING IN INCHES TO NEAREST HUNDREDTH  
92-97 STP = STATION PRESSURE IN MILLIBARS TO NEAREST TENTH  
99-101 MAX = MAXIMUM TEMPERATURE IN FAHRENHEIT (TIME PERIOD VARIES)  
103-105 MIN = MINIMUM TEMPERATURE IN FAHRENHEIT (TIME PERIOD VARIES)  
107-111 PCP01 = 1-HOUR LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS --

THAT IS, THE PRECIP FOR THE PRECEDING 1 HOUR PERIOD  
113-117 PCP06 = 6-HOUR LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS --  
THAT IS, THE PRECIP FOR THE PRECEDING 6 HOUR PERIOD  
119-123 PCP24 = 24-HOUR LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS  
THAT IS, THE PRECIP FOR THE PRECEDING 24 HOUR PERIOD  
125-129 PCPXX = LIQUID PRECIP REPORT IN INCHES AND HUNDREDTHS, FOR  
A PERIOD OTHER THAN 1, 6, OR 24 HOURS (USUALLY FOR 12 HOUR PERIOD  
FOR STATIONS OUTSIDE THE U.S., AND FOR 3 HOUR PERIOD FOR THE U.S.)  
T = TRACE FOR ANY PRECIP FIELD  
131-132 SD = SNOW DEPTH IN INCHES

NOTES:

- '\*'s IN FIELD INDICATES ELEMENT NOT REPORTED.
- SOME VALUES WERE CONVERTED FROM METRIC TO ENGLISH UNITS. THIS WILL OCCASIONALLY RESULT IN MINOR DIFFERENCES VS ORIGINAL DATA DUE TO ROUNDING.
- COLUMN POSITION REFERS TO ASCII TEXT DATA.
- THIS FORMAT CAN BE EASILY IMPORTED INTO A SPREADSHEET OR A DATABASE MANAGEMENT SYSTEM SINCE FIELDS ARE SPACE-DELIMITED.
- THIS FORMAT DOES NOT INCLUDE QUALITY CONTROL FLAGS, WHICH ARE AVAILABLE IN THE ADVANCED FORMAT THROUGH THE CLIMATE DATA ONLINE SYSTEM.

PRESENT WEATHER CODE TABLE

The code that denotes a specific type of weather observed.

-----  
00-49 No precipitation at the station at the time of observation  
-----

00-19 No precipitation, fog, ice fog (except for 11 and 12),  
duststorm, sandstorm, drifting or blowing snow at the station at the  
time of observation or, except for 09 and 17, during the preceding  
hour  
-----

00: Cloud development not observed or not observable  
01: Clouds generally dissolving or becoming less developed  
02: State of sky on the whole unchanged

03: Clouds generally forming or developing  
04: Visibility reduced by smoke, e.g. veldt or forest fires,  
industrial smoke or volcanic ashes  
05: Haze  
06: Widespread dust in suspension in the air, not raised by wind at  
or near the station at the time of observation  
07: Dust or sand raised by wind at or near the station at the time of  
observation, but no well-developed dust whirl(s) or sand whirl(s),  
and no duststorm or sandstorm seen or, in the case  
of ships, blowing spray at the station  
08: Well developed dust whirl(s) or sand whirl(s) seen at or near the  
station during the preceding hour or at the time of observation, but  
no duststorm or sandstorm  
09: Duststorm or sandstorm within sight at the time of observation,  
or at the station during the preceding hour  
10: Mist  
11: Patches of shallow fog or ice fog at the station, whether on land  
or sea, not deeper than about 2 meters on land or 10 meters at sea  
12: More or less continuous shallow fog or ice fog at the station,  
whether on land or sea, not deeper than about 2 meters on land or 10  
meters at sea  
13: Lightning visible, no thunder heard  
14: Precipitation within sight, not reaching the ground or the  
surface of the sea  
15: Precipitation within sight, reaching the ground or the surface of  
the sea, but distant, i.e., estimated to be more than 5 km from the  
station  
16: Precipitation within sight, reaching the ground or the surface of  
the sea, near to, but not at the station  
17: Thunderstorm, but no precipitation at the time of observation  
18: Squalls at or within sight of the station during the preceding  
hour or at the time of observation  
19: Funnel cloud(s) (Tornado cloud or waterspout) at or within sight  
of the station during the preceding hour or at the time of  
observation  
-----  
20-29 Precipitation, fog, ice fog or thunderstorm at the station  
during the preceding hour, but not at the time of observation  
-----  
20: Drizzle (not freezing) or snow grains not falling as shower(s)  
21: Rain (not freezing) not falling as shower(s)

- 22: Snow not falling as shower(s)
- 23: Rain and snow or ice pellets not falling as shower(s)
- 24: Freezing drizzle or freezing rain not falling as shower(s)
- 25: Shower(s) of rain
- 26: Shower(s) of snow or of rain and snow
- 27: Shower(s) of hail (Hail, small hail, snow pellets), or rain and hail
- 28: Fog or ice fog
- 29: Thunderstorm (with or without precipitation)

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30-39 Duststorm, sandstorm, or blowing snow

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- 30: Slight or moderate duststorm or sandstorm has decreased during the preceding hour
- 31: Slight or moderate duststorm or sandstorm no appreciable change during the preceding hour
- 32: Slight or moderate duststorm or sandstorm has begun or has increased during the preceding hour
- 33: Severe duststorm or sandstorm has decreased during the preceding hour
- 34: Severe duststorm or sandstorm no appreciable change during the preceding hour
- 35: Severe duststorm or sandstorm has begun or has increased during the preceding hour
- 36: Slight or moderate drifting snow generally low (below eye level)
- 37: Heavy drifting snow generally low (below eye level)
- 38: Slight or moderate blowing snow generally high (above eye level)
- 39: Heavy blowing snow generally high (above eye level)

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40-49 Fog or ice fog at the time of observation

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- 40: Fog or ice fog at a distance at the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer
- 41: Fog or ice fog in patches
- 42: Fog or ice fog, sky visible, has become thinner during the preceding hour
- 43: Fog or ice fog, sky invisible, has become thinner during the preceding hour
- 44: Fog or ice fog, sky visible, no appreciable change during the preceding hour

45: Fog or ice fog, sky invisible, no appreciable change during the preceding hour

46: Fog or ice fog, sky invisible, has begun or has become thicker during the preceding hour

47: Fog or ice fog, sky invisible, has begun or has become thicker during the preceding hour

48: Fog, depositing rime, sky visible

49: Fog, depositing rime, sky invisible

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50-99 Precipitation at the station at the time of observation  
-----

50-59 Drizzle  
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50: Drizzle, not freezing, intermittent, slight at time of observation

51: Drizzle, not freezing, continuous, slight at time of observation

52: Drizzle, not freezing, intermittent, moderate at time of observation

53: Drizzle, not freezing, continuous, moderate at time of observation

54: Drizzle, not freezing, intermittent, heavy (dense) at time of observation

55: Drizzle, not freezing, continuous, heavy (dense) at time of observation

56: Drizzle, freezing, slight

57: Drizzle, freezing, moderate or heavy (dense)

58: Drizzle and rain, slight

59: Drizzle and rain, moderate or heavy  
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60-69 Rain  
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60: Rain, not freezing, intermittent, slight at time of observation

61: Rain, not freezing, continuous, slight at time of observation

62: Rain, not freezing, intermittent, moderate at time of observation

63: Rain, not freezing, continuous, moderate at time of observation

64: Rain, not freezing, intermittent, heavy at time of observation

65: Rain, not freezing, continuous, heavy at time of observation

66: Rain, freezing, slight

67: Rain, freezing, moderate or heavy

68: Rain or drizzle and snow, slight

69: Rain or drizzle and snow, moderate or heavy

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70-79 Solid precipitation not in showers

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- 70: Intermittent fall of snowflakes, slight at time of observation
  - 71: Continuous fall of snowflakes, slight at time of observation
  - 72: Intermittent fall of snowflakes, moderate at time of observation
  - 73: Continuous fall of snowflakes, moderate at time of observation
  - 74: Intermittent fall of snowflakes, heavy at time of observation
  - 75: Continuous fall of snowflakes, heavy at time of observation
  - 76: Diamond dust (with or without fog)
  - 77: Snow grains (with or without fog)
  - 78: Isolated star-like snow crystals (with or without fog)
  - 79: Ice pellets
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80-99 Showery precipitation, or precipitation with current or recent thunderstorm

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- 80: Rain shower(s), slight
- 81: Rain shower(s), moderate or heavy
- 82: Rain shower(s), violent
- 83: Shower(s) of rain and snow mixed, slight
- 84: Shower(s) of rain and snow mixed, moderate or heavy
- 85: Show shower(s), slight
- 86: Snow shower(s), moderate or heavy
- 87: Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, slight
- 88: Shower(s) of snow pellets or small hail, with or without rain or rain and snow mixed, moderate or heavy
- 89: Shower(s) of hail (hail, small hail, snow pellets) , with or without rain or rain and snow mixed, not associated with thunder, slight
- 90: Shower(s) of hail (hail, small hail, snow pellets), with or without rain or rain and snow mixed, not associated with thunder, moderate or heavy
- 91: Slight rain at time of observation, thunderstorm during the preceding hour but not at time of observation
- 92: Moderate or heavy rain at time of observation, thunderstorm during the preceding hour but not at time of observation
- 93: Slight snow, or rain and snow mixed or hail (Hail, small hail, snow pellets), at time of observation, thunderstorm during the preceding hour but not at time of observation

94: Moderate or heavy snow, or rain and snow mixed or hail (Hail, small hail, snow pellets) at time of observation, thunderstorm during the preceding hour but not at time of observation  
95: Thunderstorm, slight or moderate, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation  
96: Thunderstorm, slight or moderate, with hail (hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation  
97: Thunderstorm, heavy, without hail (Hail, small hail, snow pellets), but with rain and/or snow at time of observation, thunderstorm at time of observation  
98: Thunderstorm combined with duststorm or sandstorm at time of observation, thunderstorm at time of observation  
99: Thunderstorm, heavy, with hail (Hail, small hail, snow pellets) at time of observation, thunderstorm at time of observation

#### PAST WEATHER CODE TABLE

The code that denotes a specific type of past weather observed.

0: Cloud covering 1/2 or less of the sky throughout the appropriate period  
1: Cloud covering more than 1/2 of the sky during part of the appropriate period and covering 1/2 or less during part of the period  
2: Cloud covering more than 1/2 of the sky throughout the appropriate period  
3: Sandstorm, duststorm or blowing snow  
4: Fog or ice fog or thick haze  
5: Drizzle  
6: Rain  
7: Snow, or rain and snow mixed  
8: Shower(s)  
9: Thunderstorm(s) with or without precipitation

#### LOW CLOUD TYPE

0: No low clouds  
1: Cumulus humilis or Cumulus fractus other than of bad weather or both  
2: Cumulus mediocris or congestus, with or without Cumulus of

species fractus or humilis or Stratocumulus all having bases at the same level

3: Cumulonimbus calvus, with or without Cumulus, Stratocumulus or Stratus

4: Stratocumulus cumulogenitus

5: Stratocumulus other than Stratocumulus cumulogenitus

6: Stratus nebulosus or Stratus fractus other than of bad weather, or both

7: Stratus fractus or Cumulus fractus of bad weather, or both (pannus) usually below Altostratus or Nimbostratus

8: Cumulus and Stratocumulus other than Stratocumulus cumulogenitus, with bases at different levels

9: Cumulonimbus capillatus (often with an anvil), with or without Cumulonimbus calvus, Cumulus, Stratocumulus, Stratus or pannus

#### MIDDLE CLOUD TYPE

0: No middle clouds

1: Altostratus translucidus

2: Altostratus opacus or Nimbostratus

3: Altocumulus translucidus at a single level

4: Patches (often lenticular) of Altocumulus translucidus, continually changing and occurring at one or more levels

5: Altocumulus translucidus in bands, or one or more layers of Altocumulus translucidus or opacus, progressively invading the sky; these Altocumulus clouds generally thicken as a whole

6: Altocumulus cumulogentis (or cumulonimbogentis)

7: Altocumulus translucidus or opacus in two or more layers, or Altocumulus opacus in a single layer, not progressively invading the sky, or Altocumulus with Altostratus or Nimbostratus

8: Altocumulus castellanus or floccus

9: Altocumulus of a chaotic sky; generally at several levels

#### HIGH CLOUD TYPE

0: No High Clouds

1: Cirrus fibratus, sometimes uncinus, not progressively invading the sky

2: Cirrus spissatus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus castellanus or floccus

3: Cirrus spissatus cumulonimbogenitus

4: Cirrus uncinus or fibratus, or both, progressively invading the sky; they generally thicken as a whole

5: Cirrus (often in bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole, but the continuous veil does not reach 45 degrees above the horizon

6: Cirrus (often in bands) and Cirrostratus, or Cirrostratus alone, progressively invading the sky; they generally thicken as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered

7: Cirrostratus covering the whole sky

8: Cirrostratus not progressively invading the sky and not entirely covering it

9: Cirrocumulus alone, or Cirrocumulus predominant among the High clouds